

The effect of solids ...

S/844/62/000/000/046/129
D287/D307

Reaction mechanisms are suggested for the decomposition of pure CCl_4 occurring in the above systems, in the presence/absence of solids. It is thought that solids do not affect the yield of Cl^- ions in the system $\text{CCl}_4 - \text{H}_2\text{O} - \text{solid} - \text{N}_2$ and that the solids behave as catalysts in the $\text{CCl}_4 - \text{H}_2\text{O} - \text{O}_2$ system, CCl_3 radicals and O_2 being adsorbed at the active centers of the surface. The degree of adsorption is determined by the nature of the solid, i.e. by the total number of free valencies, active with respect to O_2 and the CCl_3 radicals. Other reactions may also take place simultaneously, leading to the formation of compounds which may be desorbed. Similar phenomena were observed on irradiating the system $\text{CCl}_4 - \text{H}_2\text{O} - \text{Cu}_2\text{O}$ in the presence/absence of oxygen. There are 5 figures. ✓

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Institute im. L. Ya. Karpov)

Card 3/3

34733

S/070/62/007/001/019/022

E039/E435

AUTHORS: Yurin, V.A., Baberkin, A.S., Zheludev, I.S.

TITLE: The influence of γ -radiation on ferroelectric properties of crystals of guanidine (aminomethanamide) aluminium sulphate

PERIODICAL: Kristallografiya, v.7, no.1, 1962, 147-150

TEXT: Preliminary results are presented of an investigation of the influence of γ -radiation on the ferroelectric property of a single ferroelectric crystal of guanidine aluminium sulphate (GAS) $C(NH_2)_3Al(SO_4)_2 \cdot 6H_2O$. The sample was placed in a holder with electrodes and arranged so that its hysteresis loop could be directly observed during the exposure (carried out at room temperature). The exposure of a non-polarized sample caused its normal single hysteresis loop to change gradually into a double loop (see Fig.1 a, 6). The critical field E_{cr} increased proportionally with the dose of radiation. At the same time the coercive field E_{coer} increased in both halves of the double loop. If the exposure was carried out after applying to the sample a constant field E_0 greater than its saturation
Card 1/2

The influence of γ -radiation ...

S/070/62/007/001/019/022
E039/E435

field E_{sat} (i.e. single domain condition) then, after irradiation and removal of E_{ext} , instead of a double hysteresis loop there was a single displaced loop (Fig. 1B). The displacement field E_{dis} also increased proportionately with radiation dose. The direction of displacement was opposite to that of the external field E_{ext} . No noticeable increase in saturated polarisation P_{sat} was observed up to the maximum dose applied (80 Mr). There are 2 figures.

ASSOCIATION: Institut kristallografii AN SSSR
(Institute of Crystallography AS USSR)

SUBMITTED: July 14, 1961

Card 2/3

BABERKIN, N., inzh.

The unloading of garbage is mechanized. Zhil.-kom. khoz. 13 no.3:27
Mr '63. (MIRA 16:3)

(Refuse and refuse disposal—Equipment and supplies)

BAMERKOV, I.

"Computing the short circuit currents of electric lines in Bulgarian mines."

MINNO DELO, Sofia, Bulgaria, Vol. 14, no. 2, Mar./Apr. 1959.

Monthly list of East Europe Accessions (EEAI), LC, Vol. 8, No. 6, ^{Sept.} Jun 59,
Unclas

BABERKOV, Iv., inzh.; DIMOV, D., inzh.; BOTEV, G., inzh.

Possibilities of using coal cutters in Bulgaria. Min delo
17 no.5:6-10 My '62.

1. Minen nauchnoizsledovatel'ski institut.

TETENYI, Pal; BABERNICS, Lajos; SCHACHTER, Klara

Determination of the bond strength generated between the reaction of atoms and the nickel catalyst. Magy kem folyoir 66 no.10:378-380 0 '60.

1. Magyar Tudomanyos Akademia Kozponti Kemiai Kutato Intezete, Budapest.

352h

S/020/62/143/003/022/029
B101/B144

5.1190
5.4600
AUTHORS: Tétényi, P., and Babernics, L.

TITLE: Effect of irradiation on the catalytic properties of copper

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 3, 1962, 616 - 617

TEXT: The effect of irradiation on the catalytic properties of a copper catalyst was tested on the basis of the dehydrogenation of cyclohexane. The catalyst samples were prepared from copper nitrate according to a method described earlier (ZhFKh, 35, 72 (1961)). The catalytic activity was determined by a method described in Acta chim. Acad. sci. hung., 28, 375 (1961). The degree of conversion of C_6H_{12} into C_6H_6 was determined from the change in the refractive index. The catalyst samples were irradiated in argon atmosphere in a reactor with 10^{13} neutrons/cm².sec for about 100 hr. The catalysis experiments were performed with specimens having an activity smaller than $1\mu Cu/g$. Results: (1) The initial catalyst possessed only slight activity (0.040 ml/min at $310^\circ C$) and an apparent activation energy of 41 kcal/mole. (2) After irradiation, the activity

Card 1/2

Effect of irradiation on...

S/020/62/143/003/022/029
B101/B144

was increased (0.148 - 0.100 ml/min) and the activation energy decreased (17.5 and 18.1 kcal/mole, respectively). (3) Gamma irradiation caused no increase in catalytic activity. (4) Solution of the catalyst in HNO_3 and recrystallization produced catalysts of still greater activity (0.376 - 0.510 ml/min) with approximately unchanged activation energy. It is thus concluded that increase in activity is not due to structural changes. It still remains to be investigated whether (a) the radioactivity of the specimen, or (b) a furthering effect of Ni and Zn microquantities arising from decay of radioactive Cu is important here. There are 1 figure, 1 table, and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Institut für Isotope des Staatlichen Komitees für Atom-energie, Budapest, Ungarn (Isotope Institute of the State Committee of Atomic Energy Budapest, Hungary)

PRESENTED: November 30, 1961, by A. A. Balandin, Academician

SUBMITTED: November 29, 1961

Card 2/2

TETENYI, Pal, dr. (Budapest, XII., Konkoly Thege ut); BABERNICS, Lajos
(Budapest, XII., Konkoly Thege ut)

On the kinetics of the catalytic dehydrogenation of hydroaromatic
compounds. Pt. 5. Acta chimica Hung 35 no.4:419-432 '63.

1. National Atomic Energy Commission, Institute of Isotopes,
Budapest.

TETENI, Pal; SCHACHTER, Klara; BABERNICS, Lajos

Kinetic method for determining the energy of bonds occurring between catalysts and reacting atoms. Magy kem folyoir 69 no.4:181-183 Ap '63.

1. Orszagos Atomenergia Bizottsag Izotop Intezete, Budapest.

TETENYI, Pal, dr.; BABERNICS, Lajos; GUCZI, Laszlo; SCHACHTER, Klara (Mrs)

Effect of the method of preparation on the adsorptive and catalytic properties of nickel. Pt.1. Acta chimica Hung 40 no.4:387-396 '64.

1. National Atomic Energy Commission, Institute of Isotopes, Budapest, XII., Konkoly-Thege ut.

L 1185-66 EPF(c)/BWP(j) RM

ACCESSION NR: AT5025195^{44,55}

HU/2502/64/042/004/0325/0337^{44,55}

AUTHOR: Tetenyi, Pal (Teteni, P.)(Doctor)(Budapest); Schachter, Klara (Shelditer, K.) (Budapest); Babernics, Lajos (Babernich, L.)(Budapest) ^{29 131 44,55}

TITLE: Effect of the method of preparation on the adsorptive and catalytic properties of nickel. Part 4: Kinetics of the dehydrogenation of isopropanol ^{44,55}

SOURCE: Academia scientiarum hungaricae. Acta chimica, v. 42, no. 4, 1964, 325-337

TOPIC TAGS: nickel, dehydrogenation, catalysis, alcohol

ABSTRACT: The kinetics of the dehydrogenation of isopropanol was investigated with the various nickel catalysts described in Acta Chimica Academiae Scientiarum Hungaricae, Vol 42, 1964, p 227, prepared by various methods, and the activation energy of the reaction was determined. The activation energies were found to be affected by the method of catalyst preparation. Orig. art. has: 7 graphs, 2 tables, 9 formulas. ^{44,55}

ASSOCIATION: National Atomic Energy Commission, Institute of Isotopes, Budapest

SUBMITTED: 01Apr64

ENCL: 00

SUB CODE: OC, CC

NR REF SOV: 001

OTHER: 010

JPRS

Card 1/1 ^{44,55}

L 21335-66 EWP(j)/EWP(t) IJP(c) RM/JD/HW

ACCESSION NR: AT5021539

HU/2502/64/042/003/0227/0241

AUTHOR: Tetenyi, Pal (Teteni, P.)(Doctor)(Budapest); Schachter, Klara (Shekhter, K.) (Budapest); Babernics, Lajos (Babernich, L.)(Budapest)

TITLE: Effect of the method of preparation on the adsorptive and catalytic properties of nickel. Part 3: Investigation of the kinetics of the dehydrogenation of cyclohexane 27

SOURCE: Academia scientiarum hungaricae. Acta chimica, v. 42, no. 3, 1964, 227-241

TOPIC TAGS: catalysis, nickel, dehydrogenation, cyclohexane, sorption, adsorption

ABSTRACT: The effects of catalyst preparation on the ability of nickel catalysts to accelerate the rate of cyclohexane dehydrogenation were investigated. Sorption processes were the rate-determining factors in the reaction, and there was no evidence of relation between the heat of hydrogen adsorption and activation energy. It was thought likely that both the carbon and the hydrogen atoms joined by the bond are adsorbed on the surface of the catalyst. Orig. art. has: 9 tables, 4 formulas, 4 graphs.

Card 1/2

L 21335-66

ACCESSION NR: AT5021539

ASSOCIATION: National Atomic Energy Commission, Institute of Isotopes, Budapest

SUBMITTED: 18Feb64

ENCL: 00

SUB CODE: GD, OC

NR REF SOV: 007

OTHER: 012

JPRS

Card 2/2

TUMANOV, A.T., glav. red.; VYATKIN, A.Ye., red.; GARBAR, M.I., red.; ZAYMOVSKIY, A.S., red.; KARGIN, V.A., red.; KISHKIN, S.T., red.; KISHKINA-RATNER, S.I., doktor tekhn. nauk, red.; PANSIN, B.I., kand. tekhn. nauk, red.; MOGOVIN, Z.A., red.; SAZHIN, N.P., red.; SKLYAROV, N.M., doktor tekhn. nauk, red.; FRIDLYANDER, I.N., doktor tekhn. nauk, red.; SHUBNIKOV, A.V., red.; SHCHERBINA, V.V., doktor geol.-miner. nauk, red.; SHRAYBER, D.S., kand. tekhn. nauk, red.; GENEL', S.V., kand. tekhn. nauk, red.; VINOGRADOV, G.V., doktor khoz. nauk, red.; NOVIKOV, A.S., doktor khoz. nauk, red.; KITAYGORODSKIY, I.I., doktor tekhn. nauk, red.; ZHEREBKOV, S.K., kand. tekhn. nauk, red.; BOGATYREV, P.M., kand. tekhn. nauk, red.; SANDOMIRSKIY, D.M., D.M., kand. tekhn. nauk, red.; BUROV, S.V., kand. tekhn. nauk, red.; POTAK, Ya.M., doktor tekhn. nauk, red.; KUKIN, G.N., doktor tekhn. nauk, red.; KOVALEV, A.I., kand. tekhn. nauk, red.; YAMANOV, S.A., kand. tekhn. nauk, red.; SHEFTEL', I.A., kand. khoz. nauk, st. nauchn. red.; BABERTSYAN, A.S., inzh., nauchn. red.; BRAZHNIKOVA, Z.I., nauchn. red.; KALININA, Ye.M., mlad. red.; SOKOLOVA, V.G., red.-bibliograf; ZENTSEL'SKAYA, Ch.A., tekhn. red.

[Building materials; an encyclopedia of modern technology] Konstruktsionnye materialy; entsiklopediya sovremennoi tekhniki. Glav. red. A.T.Tumanov. Moskva, Sovetskaya entsiklopediya. Vol.1. Abliatsiya - korroziya. 1963. 416 p. (MIRA 17:3)

1. Chlen-korrespondent AN SSSR (for Kishkin).

L 02277-67 EWT(1)

ACC NR: AP6025248

SOURCE CODE: UR/0057/66/036/007/1217/1225

AUTHOR: Smirnitskaya, G.V.; Babertsyan, R.P.

ORG: Physics Department, Moscow State University (Fizicheskii fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: On the kinetics of the positive ions in a Penning discharge

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 7, 1217-1225

TOPIC TAGS: gas discharge, Penning discharge, ion distribution, particle trajectory

ABSTRACT: The authors have calculated ion trajectories in long- and short-anode Penning discharges, using experimentally determined potential distributions. Calculations were performed both for the case of a low pressure discharge, when space charge may be neglected, and for the case when space charge must be taken into account. For most of the calculations simple quadratic expressions were assumed for the potential as a function of the cylindrical coordinates r and z and closed expressions were obtained for the trajectories. Numerical calculations based on a slightly more complicated expression for the potential were performed for the case of a ring-anode Penning tube. The following conclusions are drawn: the ions execute complex oscillations about the axis of the discharge or, in case space charge is significant, about the radius of minimum potential, and the number of these oscillations depends on the length

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L 02277-67

ACC NR: AP6025248

2

of the anode, the conditions of the discharge, and the point of origin of the ion; in the case of a long anode the ions originating on the plane $z = a$ reach the center of the cathode for certain values of a , and reach other parts of the cathode for other values of a ; and in the case of a short anode the ions move on logarithmic curves, and only the ions originating on the axis reach the center of the cathode. The authors assert that the above conclusions have been confirmed by experimental measurements of electric fields in Penning discharges, performed by the methods proposed elsewhere by E.M.Reykhruel' and themselves (Tezisy 7-y Mezhdunarodoy konferentsii po yavleniyam v ionizovannykh gazakh. Belgrade, 1965, str. 42). The authors thank E.M.Reykhruel' for valuable advice and discussions. Orig. art. has: 36 formulas, 4 figures, and 1 table.

SUB CODE: 20

SUBM DATE: 05Jul65

ORIG. REF: 009

OTH REF: 003

Card 2/2 vmb

L 02276-67 EWT(1)

ACC NR: AP6025249

SOURCE CODE: UR/0057/66/036/007/1226/1232

AUTHOR: Reykhudel', E.M.; Smirnitskaya, G.V.; Babertsyan, R.P.

34
B

ORG: Physics Department, Moscow State University (Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: A new method for determining the potential distribution in a Penning discharge

21

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no.7, 1226-1232

TOPIC TAGS: gas discharge, Penning discharge, electric potential, potential distribution

ABSTRACT: The authors describe a new technique for determining the potential distribution in a Penning discharge, which they call the "ion-kinetic method", and present experimental data obtained by the new technique. The ion-kinetic method is based on the fact, shown by calculations of two of the present authors (ZhTF, 36, 1217, 1966/ see Abstract AP6025248/), that ions originating on certain planes perpendicular to the axis of a Penning discharge reach the center of the plane cathode at angles depending on their radii of origin. To measure the radial distribution of potential in the Penning discharge one need merely measure the energies of the ions issuing in different directions from a hole in the center of the cathode and employ the appropriate equations, which are presented but not derived in the present paper. The most

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UDC: 533.9

L 02276-67

ACC NR: AP6025249

energetic ions issuing in a given direction originate on the central plane of the discharge tube, and from the energies of the most energetic ions issuing in different directions one can determine the radial distribution of potential on that plane. The authors assert that the radial potential distributions on other planes as well as the axial potential distribution can also be determined. Advantages of the ion-kinetic method are that it involves no distortion of the field within the Penning tube and that it can be employed over the wide pressure range from 10^{-3} to 10^{-11} mm Hg. The ion-kinetic method was employed to measure radial potential distributions on the central plane of a Penning tube having a 1 cm long 4 cm diameter cylindrical anode and plane cathode 6 cm apart. Some 30 potential curves, recorded at different pressures, magnetic field strengths, and discharge currents are presented and discussed in some detail. It is concluded that increasing the magnetic field strength hinders the escape of electrons to the anode and increases the negative space charge, and that increasing the pressure facilitates escape of electrons to the anode and reduces the negative space charge. At the highest pressures (about 10^{-3} mm Hg) the space charge was neutralized and the potential distribution was similar to that in a glow discharge. Orig. art. has: 11 formulas and 3 figures.

SUB CODE: 20

SUBM DATE: 06Jul65

ORIG. REF: 005

OTH REF: 003

Card 2/2 vmb

ACC NR: AP6033264

SOURCE CODE: UR/0109/66/011/010/1897/1899

AUTHOR: Smirnitskaya, G. V.; Babertayan, R. P.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Charged-particle stream toward cathode in a Penning-type discharge

SOURCE: Radiotekhnika i elektronika, v. 11, no. 10, 1966, 1897-1899

TOPIC TAGS: gas discharge, charged particle

ABSTRACT: The results are reported of an experimental investigation of the energy distribution of ions flying into the behind-the-cathode space at various angles, in tubes having different discharge-gap configurations and different discharge parameters. The ions formed in the discharge axis hit the central rod of the collector; nonaxial ions hit collector radial rings. It is found that: (1) In the Penning-type discharge, the ions arrive at the cathode at various angles; if the cathode has a central hole, the ions fly beyond the cathode in a diverging beam (also see W. Knauer, J. Appl. Phys., 1962, 33, 6, 2093); (2) The ion beam contains

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ACC. NR. AP6033264

groups that differ by 100--200 ev, which points up the existence of discrete ionization regions along both the axis and the radius of the gap; distribution of the ionization regions depends on the electrode configuration and discharge parameters; (3) At low pressures and in strong magnetic fields, emergence of electrons from the cathode central hole has been observed; this has been accompanied by formation of a dense space charge in the anode-cylinder region; this charge bucks the potential in the gap center below the cathode potential; this negative space charge abruptly cuts the discharge current. "In conclusion, the authors wish to thank E. M. Reykhrudel' for his valuable advice." Orig. art. has: 3 figures.

SUB CODE: 20 / SUBM DATE: 01Feb66 / ORIG REF: 003 / OTH REF: 003

Card 2/2

BAES, Aurel A.

DECEASED
1961

1963/
/4

Physiol ogy

BABES, Al., ing.

Methods of testing the deposits of potassium and magnesium salts in
Rumania. Rev min 12 no.11:499-503 N '61.

(Rumania--Mining engineering) (Potassium)
(Magnesium salts)

BABES, M.V.

On the beginnings of Rumanian rabiology. Stud. cercet. infra-microbiol., Bucur. 10 no.2:241-244 '59.

1. Comunicare prezentata la Institutul de inframicrobiologie al Academiei R.P.R., in sedinta din 16 1958.

(RABIES)

BABES, M.V.

70 years since the discovery of the fundamentals of serotherapy
(1889-1959). Stud. cercet. inframicrobiol. Bucur. 12 no.1:143-150
'61.

(SERTHERAPY history)

NICOLAU, St. S.; SURDAN, C.; SARATEANU, D.; ATHANASIU, Pierrette;
SORODOC, G.; POPESCU-DANESCU, Georgeta; BABES, V.;
STEFANESCU, I.; ILIESCU, C.; RADESCU, R.; MALITCHI, E.;
CADERE, T.; FLORIAN, I.; PARASCHIVESCU, N.; SETLACEK, D.;
DUMITRESCU, St.; SILVIU DAN, S.

A study concerning the rickettsial or pararickettsial etiology
of some cardiovascular diseases. Rev. sci. med. 8 no.3/4:
151-158 '63.

1. Member of the Academy of the R.P.R. (for Nicolau).
(RICKETTSIAL DISEASES) (ANTIBODIES)
(CARDIOVASCULAR DISEASES) (ENDOCARDITIS)
(PERICARDITIS) (HEART BLOCK) (CORONARY DISEASE)
(THROMBOPHLEBITIS)

SURDAN, C.; ATHANASTU, Pirette; PETRESCU, Al.; ~~BABES, V.~~; STEGANESCU,
Ilana; COPELOVICI, Yolanda; NICOLAU, St.S; CARAPALCEA, M.

Investigations of the role of rickettsial and para-rickettsial
infections in human eye diseases. Stud. cercet. inframicrobiol.
15 no.5:447-454 '64.

NICOLAU, St.S., academician; SURDAN, C.; SARATRANU, D.; ATHANASIU-
PETRESCU, P.; SORODOC, G.; POPESCU, G.; BABES, V.

The rickettsial or pararickettsial etiology of cardiovascular
diseases. Stud. cercet. inframicrobiol. 14 no.4:379-408 '63.

(RICKETTSIAL DISEASES) (TETRACYCLINE)
(CORONARY DISEASE) (ROLITETRACYCLINE)
(THROMBOPHLEBITIS) (CHLORTETRACYCLINE)
(THROMBOSIS)

RUMANIA

SURDAN, C., SARATEANU, D., BABES, V.T., POPESCU, Georgeta, STEFANESCU, Ileana and NESTEROV, I. of the Institute of Inframicrobiology of the RPR Academy (Institutul de Inframicrobiologie al Academiei RPR) and the Laboratory of Game Biology of the Institute of Forest Research (Laboratorul de Biologia Vinatului al Institutului de Cercetari Forestiere).

"Is Epidemic Typhus an Anthroponosis?"

Bucharest, Studii si Cercetari de Inframicrobiologie, Vol 14, No 5, 1963, pp 583-592.

Abstract [Authors' English summary modified]: Serological tests for rickettsial and pararickettsial affections were carried out on 210 domestic animals (cows, ewes, sows) and 154 wild animals. Among the domestic animals there were 92.8% positive reactions, of which 63% to R. prowazeki alone or combined with other antigens. For wild animals, the respective percentages were 34.4% positive, of which 35.7% to R. prowazeki. The authors discuss the possibility that R. prowazeki exists in other animals besides men and lice.

Includes 4 tables and 6 references, of which 4 French and 2 Russian.

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1/1

SARATEANU, D., dr.; ISTRATI, I., dr.; LANDESMAN, V., dr.; SATIARI, C., dr.,
SORODOC, G., dr.; BABES, V.T., dr.; NICHIFOR, I., dr.; GEORGIAN, I., dr.

Contribution to the incidence of ornithotic infections in the
Rumanian People's Republic. Microbiologia (Bucur.) 10 no.4:355-
360 J1-Ag '65.

1. Lucrare efectuata in Institutul de inframicrobiologie al
Academiei R.S.R.

ROMANIA

BABES, V.T. and STEFANESCU, Ileana of the Institute of Inframicrobiology of the RPR Academy (Institutul de Inframicrobiologie al Academiei RPR).

"Contributions to the Technical Improvement of Rickettsia Microagglutination."

Bucharest, Studii si Cercetari de Inframicrobiologie, Vol 14, No 5, 1963, pp 649-660.

Abstract [Authors' English summary modified]: Describes an accurate and rapid slide agglutination technique based on Giroud's microagglutination principle. The necessary materials are readily available and include either Cornwall syringes or Record syringes adapted for the aspiration of a constant volume.

Includes 15 figures and 19 references, of which 5 German, 1 Czech, 5 French and 8 Rumanian.

RUMANIA

616.15:616.2:576.8

ATHANASIU, Pierrette, SARATEANU, D., SURDAN, C., POPESCU, George-
ta, STEFANESCU, Ileana, BABES, V., BILLER, Sigrid, BRUNITKI, Al.,
DANIELESCU, Georgeta, BUTOIANU, C., IALOMITEANU, M., RADULESCU, I.,
COSTANDACHE, D., DOERESCU, Gh., and NAUM, O., of the Institute of
Inframicrobiology (Institutul de Inframicrobiologie) of the
Academy of the Socialist Republic of Rumania (al Academiei
Republicii Socialiste Romania).

"A Study of the Relations Between the Etiology and Changes in the
Serum Electrophoregram in Patients with Acute Rickettsial, Para-
rickettsial, Adenovirotic and Grippal Pneumopathies."

Bucharest, Studii si Cercetari de Inframicrobiologie, Vol 17,
No 2, 66, pp 93-103.

Abstract: Statistical analysis of laboratory data showed that
in the acute stages of all the above diseases the albumins are
lowered and globulins are raised, and the albumin/globulin
ratio is less than unity. During convalescence the proteinogram
returns to normal alongside the increase of specific antibodies
in the case of grippal or adenovirus infections, but in the case
of rickettsial or pararickettsial ones does so only when the
specific antibodies are countered by treatment.

Includes 4 Rumanian and one French reference.

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RUMANIA

576.8.093.3:616-076.3

BABES, V. T., Dr., of the Institute of Inframicrobiology (Institutul de Inframicrobiologie) of the Socialist Republic of Rumania (al Academiei Republicii Socialiste Romania).

"An Apparatus for the Counting of Bacterial Colonies."

Bucharest, Microbiologia, Parazitologia, Epidemiologia, Vol 11, No 4, Jul-Aug 66, pp 379-380.

Abstract: The author constructed a simple and inexpensive device for counting bacterial colonies. Essentially the device consists of a fountain pen type reservoir and pen connected to a tachometric registering device; whenever the pen is pushed down onto a hard surface, the counter is triggered.

Includes 2 figures.

1/1

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Neurology

RUMANIA

616.981.71:616.853

BABES, V. T., SARATEANU, D., POPESCU, Georgeta, DEMETRESCU, R.,
and CHINDEA, Victoria [affiliation not given]

"Studies on the Rickettsial and Pararickettsial Etiology of
Epilepsy and Neuropsychic Illnesses in Children."

Bucharest, Studii si Cercetari de Inframicrobiologie, Vol 17,
No 3, 66, pp 181-187.

Abstract: The authors studied experimentally and serologically
129 cases of epilepsy and 85 cases of patients suffering from
other neuropsychic disorders with the aim of determining whether
rickettsial and pararickettsial organisms play any part in the
etiology of the diseases. The results were not conclusive but
lead the authors to suggest a strong possibility that an in-
fectious microbial factor is involved.

Includes 2 tables, 2 figures and 13 references, of which
one German and 12 Rumanian.

1. 45251-66 I JK
 ACC NR: AF6033591 SOURCE CODE: RU/0023/65/010/004/0355/0560 24
 AUTHOR: Sarateanu, D.--Seretsyanu, D. (Doctor); Istrati, I.--Stratu, I. (Doctor);
 Landesman, V. (Doctor); Satmari, C.--Satmari, K. (Doctor); Sorodoc, G.--Sorodok, G. (Doctor);
 Babes, V. T.--Babesh, V. T. (Doctor); Nichifor, I.--Nikifor, I. (Doctor);
 Georgian, I.--Dzhordzhian, I. (Doctor)
 ORG: Institute of Inframicrobiology, RSR Academy (Institutul de inframicrobiologie al
 Academiei R.S.R.)
 TITLE: Contribution to the study of the incidence of ornithosis in Rumania
 SOURCE: Microbiologia, parazitologia si epidemiologia, v. 10, no. 4, 1965, 355-360
 TOPIC TAGS: antibody, animal disease, man, disease incidence
 ABSTRACT: In a test of 468 persons aged 20 to 22, 18.5 percent showed anti-ornithosis
 antibodies (determined by complement fixation). The positive percentage varied
 according to the origin of the subjects, but no difference was found between rural
 and urban areas. In closed communities the index of positive reactions increased
 in the course of 3 months from 6.2 and 7.3 percent to 25.6 and 19.1 percent,
 respectively; of the 40 persons kept under constant observations, 7 showed an
 increase in antibody titer. Orig. art. has: 4 tables. [Based on authors' Eng.
 abst.] [JPRS: 32,913]
 SUB CODE: 06 / SUBM DATE: 19Dec64 / ORIG REF: 005 / SOV REF: 001
 OTH REF: 004
 Card 1/1 UDC: 616.988.73(R)

BABESHKIN, A. M.

AUTHORS: Baranov, V. I., Babeshkin, A. M., Zaborenko, K. B. 78-1-3/43

TITLE: **The Problem of Behavior** of Natural Radioactive Isotopes (K voprosu o povedenii yestestvennykh radioaktivnykh izotopov).

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 1, pp. 16-19(USSR).

ABSTRACT: The explanation of the migration mechanism of radioactive elements in nature is one of the most important problems of modern science. From their quantitative relations we can learn the peculiarities of the reaction of single elements (reference 1). According to Starik's theorem (reference 2) their reaction is determined by their form of occurrence. The atoms of mother-elements (uranium, thorium) form part of the crystal lattice of the initial compounds. The atoms of the products of radioactive decomposition have chemical and crystallographic properties different from the latter. The atoms of the decomposition products are capable of leaving their position while losing recoil energy and to enter the widely spread capillary network which is filled with water. The further fate of the recoil atoms is determined by diffusion processes. The radium isotopes are lixiviatable to a large extent as radium forms always a decomposition product at the ratio mother-substance -uranium, which forms part of the crystal lattice.

Card 1/3 The authors formed the task of studying the problem mentioned in the

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title for that case in which the isotopes are crystal forming. They should furtheron be compared with the reaction of the decomposition products (e. g. thorium isotopes) the crystal lattice of which is different. As for the solution of this problem natural formations can not be used the authors chose barium compounds the crystal lattice of the radium compounds of which are isomorphous (BaSO_4 , BaCrO_4 , BaCO_3).

These salts were precipitated from solutions which contained Ra-226 and Ra-228. Because of radioactive transformations the isotopes Th-228 and Ra-224 are produced from them. According to table 1 Th-228 passes in all cases to the solution to a much smaller extent than radium isotopes. The transition of the radium isotopes Ra-224, Ra-226 and Ra-228, which from the beginning took part in the crystal lattice of the compound, to the solution follows the Khlopin theorem. Ra-224, which developed because of radioactive transformations in all cases passes over to the solution to a greater extent than Ra-228 and Ra-226 (table 1). For the salts investigated here the maximal ratio:

Ra-224 or Ra-224,
Ra-228 Ra-226

referring to the monolayer, can reach the remarkable value ~ 25 .

Should the exchange process cover a number of layers which is equal to the range the ratio must be:

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The Problem of Behavior of Natural Radioactive Isotopes.

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$\frac{Ra\ 224}{Ra\ 228}$ = 1. As can be seen from table 2 this ratio decreases in the solution with the increasing number of layers entering the exchange. The ratio between radioactive isotopes, passing over to the solution, depends on a number of factors: the range of the recoil atom of the isotope forming, the size of particles, the gaps between the particles, the composition and the thickness of the medium in the gaps, the time which passed since the formation of the surface, the decay constant of the isotope forming and the number of the layers of the solid substance taking part in the exchange. The experimental results are in good agreement with the mechanism proposed. There are 3 tables, and 6 Slavic references.

ASSOCIATION: Moscow State University imeni M. V. Lomonosov, Laboratory For Radiochemistry of the **Chemistry Dept.** (Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova, Laboratoriya radiokhimii khimicheskogo fakul'teta).

SUBMITTED: June 18, 1957.
AVAILABLE: Library of Congress.
Card 3/3

78-3-4-35/38

AUTHORS: Baranov, V. I., Babeshkin, A. M., Zaborenko, K. B.,
Pirozhkov, S. V.

TITLE: The Mechanism of the Migration of Radium- and Thorium Isotopes
(O mekhanizme migratsii izotopov radiya i toriya)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 4, pp. 1054-1059
(USSR)

ABSTRACT: The reaction of radium- and thorium isotopes, produced by the
radioactive transformation in the interaction with soluble
compounds the crystal lattices of which are isomorphous with
radium or thorium, was investigated. The experiments were
carried out with barium salts isomorphous with radium as
well as with cerium salts, like CeO_2 and $\text{Ce}_2(\text{C}_2\text{O}_4) \cdot 10 \text{H}_2\text{O}$
isomorphous with the thorium isotope Th-228 .
The time dependence of the desorption of Ra-228 , Ra-224 and
 Th-228 from barium carbonate in barium chloride solution was
determined. The desorption of radium is greater than that
of thorium. Furthermore, the desorption of radium- and
thorium isotopes in hydrochloric acid and aluminum chloride
solutions was investigated.

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78-3-4-35/38

The Mechanism of the Migration of Radium- and Thorium Isotopes

The desorption of Th-228 acquires the following order depending on the solution medium: $H^+ > Al^{3+} > Ba^{2+}$.

Summarizingly it was stated that the thorium isotopes formed in the decay less easily pass over into the solution than radium isotopes, independently of the fact, whether the solid phase from which they emerge is isomorphous or not. This reaction of Th-228 is caused by its characteristic chemical features and not by the crystal form of the initial compounds. There are 7 tables and 19 references, 17 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: February 11, 1957

Card 2/2

SOV/78-3-9-31/38

AUTHORS: Baranov, V. I., Babeshkin, A. M., Zaborenko, K. B.

TITLE: The Mechanism of Migration of Radioactive Isotopes Originating in α -Ray Disintegration (O mekhanizme migratsii radioaktivnykh izotopov, obrazuyushchikhsya v rezul'tate α -raspada)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 9, pp 2200-2209 (USSR)

ABSTRACT: The paper under review investigates the laws governing the concentration and distribution of radioactive isotopes in solids originating in α -ray disintegration. The influence exerted by various factors upon the degree of transition of radioactive isotopes from the solid to the liquid phase was examined. The experiments and comparisons were carried out with radium isotopes. The ratio between radioactive isotopes that pass from the solid phase into solution depends largely on the number of layers that take part in the exchange. The *results of the experiments show that the degree of transition of radium isotopes into solution is larger in the case of Ra^{224} than in the case of Ra^{226}* . If the number of layers taking part in the exchange increases the degree of transition of

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SOV/78-3-9-31/38

The Mechanism of Migration of Radioactive Isotopes Originating in α -Ray
Disintegration

radium isotopes passing from the solid phase into solution
decreases.

There are 1 figure, 9 tables, and 8 references, 7 of which are
Soviet.

SUBMITTED: April 20, 1957

Card 2/2

1
 100-4-8-22,41
 AUTHORS: Ushakina, A. P., Ushakov, V. I., Ushakov, I. S.
 TITLE: The Determination of Small Amounts of Thorium and Radium Extraction with the Impulse Ionization Chamber (Izmereniya kolyestvov kharakteristicheskoy radiya i toriya impul'snoy ionizatsionnoy kameroy)
 JOURNAL: Sovetskaya laboratoriya, 1958, Vol. 24, No. 3, pp. 264-267 (US R)
 ABSTRACT: Single α -particles are usually counted in gases such as argon and nitrogen. Investigations have shown that an ionization chamber filled with air can also be used for this purpose. The authors have for several years measured radium and thorium extractions using an impulse amplifier of the **D** type. The sample containing Ra-226 was dissolved in Trilon-B, which was then aerated, and the radon was then determined in the ionization chamber. The thorium was then measured in an air stream. **as usually** The experimental procedure is given, and it is mentioned that the measurements were obtained with a **D** type apparatus. S. I. Ushakov and V. I. Ushakov carried out the test measurements on the apparatus. In these test measurements and in the experimental measurements themselves

J. V. K. - 1-2- 1967

The Measurement of Small Amounts of Radium and Thorium Emanation in the
Ionization Chamber

A counting velocity of 300 - 550 pulses per minute (standard deviation: about $\pm 1\%$) was observed. The sensitivity of the method is indicated by the amount of radium determined in 24 hours ($4 \pm 1,6$) $\cdot 10^{-14}$ g. There are 6 references, 2 of which are Soviet.

Author's address: Leningradskiy gosudarstvennyy universitet im. N. Y. Zhukovskogo
(Leningradskiy gosudarstvennyy universitet im. N. Y. Zhukovskogo)

Page 1

ZABORENKO, K.B.; BABESHKIN, A.M.; BEYEVSKA, V.A. .

Application of the emanation method in the study of processes
taking place in solids during heating. Radiokhimiia 1 no.3:
336-345 '59. (MIRA 12:10)
(Chemistry, Physical and theoretical)
(Barium sulfate) (Barium carbonate)

ZABORENKO, K.B.; BABESHKIN, A.M.; KOVALENKO, I.V.

Emanation and leaching of radium isotopes from monazite. Radio-
khimiia 1 no.6:738-741 '59. (MIRA 13:4)
(Radium--Isotopes) (Monazite)

ZABORZENKO, K.B.; BABESHKIN, A.M.; AUL'CHENKO, I.S.

Mechanism of the concentration and separation of recoil atoms
in the systems solid phase - gas and solid phase - solution.
Radiokhimiia 1 no.6:742-746 '59. (MIRA 13:4)
(Radon--Isotopes) (Radium--Isotopes)

BABESHKIN, A. M., Cand Chem Sci -- "Effect of the ~~recoil~~^{of fission} energy of nuclear transformations in solid bodies upon the fission of natural radioactive isotopes." Mos, 1960 (Acad Sci USSR. Inst of Geochemistry and Analytic Chemistry im V. I. Vernadskiy). (KL, 1-61, 181)

BABESKHIN, A. M., ZABORENKO, K. B. (USSR)

"Influence of the Energy of Recoil of Nuclear Transformations in Solids on the Distribution of Natural Radioactive Isotopes."

paper submitted for the Symposium on the Chemical Effects of Nuclear Transformation (IAEA) Prague, 24-27 Oct. 1960.

30655

S/153/60/003/02/13/034
B011/B003

5.410

AUTHORS: Zaborenko, K. B., Babeshkin, A. M., Melikhov, L. L.
TITLE: Application of the Emanation Method for the Investigation
of Processes Occurring With the Solid Substance on Heating
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i
khimicheskaya tekhnologiya, 1960, Vol. 3, No. 2,
pp. 288-292

TEXT: In the paper under review the authors attempted to clarify
some phenomena which influence the separation of emanation. They
constructed an improved apparatus for the study of transformations of
solid bodies by means of the emanation method. The apparatus was
designed on the basis of the one previously described (Refs. 3,5). For
automatic recording of the measurement results a converter was con-
nected to the electromechanical counter (Type PS-64). A zero-current
relay which controlled the printing chronograph was installed at the
output of the device. A connection in series of two converters enabled

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Application of the Emanation Method for
the Investigation of Processes Occurring
With the Solid Substance on Heating

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the recording of the instant of the pulse arrival on the chronograph; these pulses corresponded to one of the conversions (1, 4, 16, 256, 1,024, 4,096). A special small-volume chamber was devised in order to study the rapid transformations with time of the emanation of preparations. The furnace temperature was controlled by means of a reconstructed apparatus of type EPP-09. The character of the polythermal lines of emanation is determined by the chemical nature of the substance to be investigated, but depends on a number of factors. The temperature intervals in which the effects were observed on the emanograms are determined by the chemical nature and by the structure of the substance; they are, however, dependent on the rate of the temperature change except at 2 - 5 degrees/min. The shape of the polythermal lines is not only influenced by the size of particles of the powder sample, but also by the production conditions of the solid substance, i.e., by the true structure of its crystals. The emanation of preparations with a different pre-treatment may differ considerably. Barium metatitanate met the requirements excluding these disadvantages. The mother elements of the thorium and radium emanations enter the

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Application of the Emanation Method for
the Investigation of Processes Occurring
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crystal lattice of the barium titanate isomorphously. Thus, possible side-effects are eliminated. Barium metatitanate was prepared from barium carbonate which contained mesothorium-1 and decay products. Polythermal lines of the formation of the barium carbonate emanation, an equimolar mixture of barium carbonate and titanium dioxide and barium metatitanate, respectively, are illustrated in Figs. 1-3. Hence it may be seen that up to 920° the change in the formation of the mixture emanation corresponds to the conversions of the barium carbonate. Above 940° the course of the curves varies. There are no effects in connection with the formation of the eutectic $\text{BaO} \cdot 2\text{BaCO}_3$, its decomposition and the complete decomposition of BaCO_3 . The emanation formation rate slows down between $990 - 1,100^{\circ}$. The reversible polymorphous conversions of the metatitanate begin at $1,210^{\circ}$. Two unknown cubic phases are formed. In conclusion, the authors state that the separation of emanation is satisfactorily expressed by a diffusion equation. The variation of the porosity of the sample on heating strongly affects the course of the polythermal

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Application of the Emanation Method for
the Investigation of Processes Occurring
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lines of emanation. The article under review was read at the 1.
Mezhvuzovskaya konferentsiya po radiokhimi (Interuniversity Conference
of Radiochemistry) in Moscow, April 20 - 25, 1959. Mention is made of
L. S. Kolovrat-Chervinskiy. There are 4 figures and 12 references,
8 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M. V.
Lomonosova; Kafedra radiokhimi (Moscow State University
imeni M. V. Lomonosov; Chair of Radiochemistry)

X

Card 4/4

BEKKER, A. A.; FANO, V.; BABESHKIN, A. N.; NESMEYANOV, A. N.

"The use of the Mossbauer effect in determining the chemical forms of Tin-119^m recoil atoms in solid compounds of tin."

report presented at IAEA Symp on Chemical Effects associated with Nuclear Reactions and Radioactive Transformations, Vienna, 7-11 Dec 64.

AUTHORS: Tronev, V. G., Babeshkina, G. K. SOV/78-3-10-9/35

TITLE: I. Chloro Rhenates of Ammonium, Pyridine, Aniline and Ethylene Diamine (I. Khlororenaty ammoniya, piridina, anilina i etilen-diamina)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 10, pp 2276-2280 (USSR)

ABSTRACT: In the present paper the synthesis and analysis of some properties, particularly of the thermal stability of the compounds $(\text{NH}_4)_2[\text{ReCl}_6]$, $(\text{PyH})_2[\text{ReCl}_6]$, $(\text{EnH}_2)[\text{ReCl}_6]$, $(\text{AnH})_2[\text{ReCl}_6]$, were carried out. The complex compounds of the A_2ReX_6 type were synthesized with ethylene diamine, pyridine and aniline. It was shown by the determination of electric conductivity and the exchange reactions that complexes with the anion $(\text{ReCl}_6)^{2-}$, combined with the respective amine ion, are produced in these solutions. These salts are regarded as amine salts of the hexachloro rhenic acid. The thermograms of $(\text{NH}_4)_2[\text{ReCl}_6]$, $\text{EnH}_2[\text{ReCl}_6]$, $(\text{AnH})_2[\text{ReCl}_6]$, $(\text{PyH})_2[\text{ReCl}_6]$ were taken. It follows from the thermograms that $(\text{NH}_4)_2[\text{ReCl}_6]$ reaches the highest degree of

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SOV/78-3-10-9/35

I. Chloro Rhenates of Ammonium, Pyridine, Aniline and Ethylene Diamine

thermal stability at 462°C. According to thermal stability, the complex compounds of quadrivalent rhenium are classified as follows: $(\text{NH}_4)_2[\text{ReCl}_6] > (\text{EnH}_2)[\text{ReCl}_6] > (\text{PyH})_2[\text{ReCl}_6] > (\text{AnH})_2[\text{ReCl}_6]$
up to 426° 376° 300° 294°

Metallic rhenium of highest purity is obtained in the thermal decomposition of ammonium chloro rhenate in the nitrogen current. Then it is completely free from oxygen compounds.

There are 6 figures and 15 references, 4 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences, USSR)

SUBMITTED: May 5, 1958

Card 2/2

AUTHORS: Tronev, V. G., Babeshkina, G. K. SOV/76-3-11-6/23

TITLE: II. Production and Properties of Rhenium Dipyrindine Tetra-
chloride (II. Polucheniye i svoystva dipiridintetrakhlorida
reniya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 11,
pp 2458 - 2461 (USSR)

ABSTRACT: A synthesis for the production of rhenium dipyrindine tetra-
chloride was investigated. $(\text{PyH})_2[(\text{ReCl}_6)]$ was used as
initial compound. The produced rhenium dipyrindine tetra-
chloride has the following composition:

%Re -	38,30
Cl -	29,16
N -	5,76

This analysis corresponds to the composition $[\text{RePy}_2\text{Cl}_4]$.

The homogeneity of the compound was confirmed by the
crystaloptic analysis. Several properties as well as the
thermal stability of the rhenium dipyrindine tetrachloride
were investigated. The determinations of the solubility,

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II. Production and Properties of Rhenium Dipyridine
Tetrachloride

SOV/78-3-11-6/23

electric conductivity, and magnetic properties showed . that the compound $[\text{RePy}_2\text{Cl}_4]$ belongs to the group of the nonelectrolytes and is similar to the corresponding platinum-(IV), -cis, and trans compounds. No well defined products are produced in the case of an interaction between $[\text{RePy}_2\text{Cl}_4]$ and ammonia, nitrite, and oxalate, at room temperature and at higher temperature. In the case of an interaction between $[\text{RePy}_2\text{Cl}_4]$ and ethylene diamine in aqueous solution $[\text{ReO}_2\text{En}_2]\text{Cl}$ is produced. Rhenium is pentavalent in this compound and the latter is diamagnetic. The pentavalence of rhenium in this compound was confirmed by the method of Noddak. There are 2 figures and 8 references, 4 of which are Soviet.

Card 2/3

II. Production and Properties of Rhenium Dipyrindine
Tetrachloride

SCV/78-3-11-6/23

ASSOCIATION: Institut obshchey i **neorganicheskoy** Khimii im.N.S.Kurnakova
Akademii nauk SSSR (Institute of General and Inorganic
Chemistry imeni N.S.Kurnakov, AS USSR)

SUBMITTED: May 5, 1958

Card 3/3

BABESHKINA, G.K.; TRONEV, V.G.

Synthesis and certain properties of pyridinium
pyridinepentahalorhenates (IV); $\text{PyH}[\text{RePyCl}_5]$ and $\text{PyH}[\text{RePyBr}_5]$.
Dokl. AN SSSR 152 no.1:100-101 S '63. (MIRA 16:9)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova
AN SSSR. Predstavleno akademikom I.I.Chernyayevym.
(Pyridinium compounds) (Rhenium compounds) (Pyridine)

BELOVA, V.I.; SYRKIN, Ya.V.; IPPOLITOV, Ye.G.; KOTEL'NIKOVA, A.S.;
BABESHKINA, G.K.; DOVLYATSHINA, R.A.

Magnetic susceptibility of some rhenium compounds. Zhur.
strukt.khim. 5 no. 2:281-287 Mr-Apr '64. (MIRA 17:6)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.
Kurnakova AN SSSR.

TRONEV, V.G. [deceased]; BABESHKINA, G.K.; FINOGENOVA, L.I.

Complex compounds of rhenium (IV) with dipyridyl. Zhur.neorg.khim.
10 no.11:2484-2492 N '65. (MIRA 18:12)

1. Submitted April 21, 1964.

BABESHKINA, Z.M.; KAPLIN, V.T.; FESENKO, N.G.

Colorimetric determination of phenols in water. Hidrokhim. mat.
35:207-217 '63. (MIRA 16:7)

1. Hidrokhimicheskiy institut, Novocherkassk.
(Water--Composition) (Phenols)

KAPLIN, V.T., PUDENKO, N.G.; BARBUSEKINA, L.D., SHIBANOV, V.I.

Effect of temperature on the disintegration rate of phenolic
phenols in natural waters. Gidromet. zap. 37:152-163 '64.

(MIRA 14:4)

1. Gidrokhimicheskiy institut Glavnogo upravleniya gidrometeorolo-
gicheskoy sluzhby pri Sovete Ministrov SSSR, Novocherkassk.

ALEKSANDROV, V.M. (Rostov-na-Donu); BABESHEO, V.A. (Rostov-na-Donu)

Contact problems for an elastic strip of limited thickness. Izv.
AN SSSR. Mekh. no.2:95-107 Mr-Apr '65. (MIRA 18:6)

ALEXANDROV, V.M.; BABESHKO, V.A.; VOROVICH, I.I.; (Rostov-on-Don)

"Asymptotic method of solving contact problems for the layer of small thickness"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

L 41105-66 EWT(d) IJP(c)

ACC NR: AP6028325

SOURCE CODE: UR/0040/66/030/004/0732/0741

24
6

AUTHOR: Babeshko, V. A. (Postov na Donu)

ORG: none

TITLE: An asymptotic method for solving the integral equations of elasticity theory and mathematical physics

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 4, 1966, 732-741

TOPIC TAGS: integral equation, ~~integral equation solution~~, mathematical physics, ~~integral equation~~, ~~Wiener-Hopf equation~~, asymptotic solution

ABSTRACT: The structure of the solution of the integral equation

$$\int_{-a}^a k(x-\xi) q_n(\xi) d\xi = \pi e^{i\eta x} \quad (|x| \leq a, \operatorname{Im} \eta = 0) \quad (1)$$

whose kernel is of the form

$$k(t) = \int_0^\infty \frac{L(u)}{u} \cos tu \, du, \quad (2)$$

where $L(u)/u$ is an even function on the real axis and meromorphic on the complex

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L 92107-82

ACC NR: AP0028325

plane, is analyzed in the case when the parameter a is large ($a^* < a < \infty$). In order to obtain the solution $q_n(x)$ of (1), the auxiliary problem of solving the Wiener-Hopf integral equation

$$\int_0^{\infty} k(x-\xi) f_n(\xi) d\xi = \pi e^{inx} \quad (0 < x < \infty) \quad (3)$$

is considered. It is shown that when the solution of (3) is established the solutions of a certain infinite system of linear algebraic equations are established simultaneously. The solution $q_n(x)$ of equation (1) is sought in the form of an infinite series and it is shown that its coefficients must be determined from a certain infinite system of linear algebraic equations. A method for solving this infinite system when the solutions of corresponding infinite system of the Wiener-Hopf problem are known is presented. The application of the method is illustrated by two examples. Orig. art. has: 64 formulas. [LK]

SUB CODE: 12/ SUBM DATE: 15Sep65/ ORIG REF: 004/ OTH REF: 001/ ATD PRESS: 5058

Card 2/2 11b

BABETS, A.P.

Fifteenth edition of the transactions of Grozny Petroleum
Scientific Research Institute. Khim. i tekhn. topl. i masel
9 no.5:71 5 My'64 (MIRA 17:7)

BABETS, Konstantin Konstantinovich; YEGOROVA, Praskov'ya Aleksandrovna;
SEMENKO, Mikhail Ivanovich; BOYARSKIY, V.A., otv. red.;
SLAVOROSOV, A.Kh., red.izd-va; LOMILINA, L.N., tekhn. red.

[Blasting in underground ore mining] Vzryvnik pri podzemnoi doby-
che rud. Moskva, Gosgortekhzdat, 1962. 146 p. (MIRA 16:2)
(Blasting)

BABETS, K.K., inzh.; VARAKUTA, V.B., inzh.; KORO GOD, V.M., inzh.

Review of "Labor safety in mines of the Krivoy Rog Basin" by
V.G.II'enko and others. Bezop.truda v prom. 4 no.10:36-37 0
'60. (MIRA 13:11)

(Krivoy Rog Basin--Mining engineering--Safety measures)
(II'enko, V.G.)

BABECS, K.S.; KULAZHENKO, V.I.

Our efforts to control vibration. Bezop. truda v prom. 8
no.11:25-26 N '64. (MIRA 18:2)

1. Rudnik im. Dzerzhinskogo krivorozhskogo basseyana.

ROGOZHIN, Ye.A.; KOSAREV, N.D., inzh.; BABETS, Yu.; STORCHAK, K.; TERESHCHENKO, N.I., burovzryvnik; MAKAROV, V.M.; BRAUN, P.P.; KUKLIN, A.D.

Reader's letters. Bezop.truda v prom. 4 no.12:36-37 D '60.

(MIRA 14:1)

1. Gornotekhnicheskii inspektor upravleniya Groznenskogo okruga Gosgortekhnadzora RSFSR (for Rogzhin). 2. Rudnik im. Gubkina. (for Kosarev). 3. Glavnyy inzhener shakhty "Krasnolimanskaya" tresta Krasnoarmeyskugol' (for Storchak). 5. Uchastok No.15-16 Krasnodarvzryvproma (for Tereshchenko). 6. Glavnyy inzhener shakhty "Baydayevskiye uklony" (for Makarov). 7. Zaveduyushchiy zdavpunktom shakhty "Baydayevskiye uklony" (for Braun). 8. Zamestitel' glavnogo inzhenera po tekhnike bezopasnosti tresta Kazzoloto (for Kuklin).
(Industrial safety)

LOKSHIN, B.S., dotsent; BABETS, Yu.N., inzh.

Mine depressions and grouping of seams. Ugol' 40 no.4:
24-25 Ap '65. (MIRA 18:5)

1. Dnepropetrovskiy gornyy institut.

BABETSKIY, Mark I'vovich; MIGULIK, Aleksandr Timofeyevich;
~~KATASHENSKIY, A.N.~~, red.

[Organization of the repair of earthmoving machinery and
repair equipment attachments] Organizatsiia remonta zemle-
roinykh mashin i remontnye prispособleniia. Leningrad,
1964. 27 p. (MIRA 18:3)

BABETSKI, S.Ya.; BUYA, Z.A.; GRIGOROV, N.L.; LOSKEVICH, Ye.S.;
MASSAL'SKI, Ye.I.; OLES', A.A.; SHESTOPEROV, V.Ya.

Studying large ionization bursts caused by cosmic-ray particles at sea level. Zhur. eksp. i teor. fiz. 40 no.6:1551-1561 Je '61. (MIRA 14:8)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

(Ionization chambers)
(Cosmic rays)

160
SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 5, no. 2,
1965, 317-325

TOPIC TAGS: automatic computer programming, computer language, computer system,
AL'FA computer, AL'FA computer programming, AL'FA computer
AL'FA computer system

ABSTRACT: This article presents a detailed description of the AL'FA Automatic
computer system.

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ACCESSION NR: AP5009396

which has the following characteristics: three-address, floating-point, one index register, an immediate address range of 1000 45-bit words, 1000 45-bit words of total storage, 1000 200 words, four

20. ALP-1000 System consists of the following components:

1. ALP-1000 computer, which is a 16-bit computer with a word length of 16 bits and a memory of 16 Kbytes.
2. ALP-1000 translator, the translating program, which is a program written in ALP-1000 language, and is a program of 1000 words. The program is of 24 blocks with a total storage of 1000 words. The program is designed to be used as a translator.

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2000 words.

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ACQUISITION NR: AP5000396

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gramming. Orig. art. has 2 tables.

ASSOCIATION: none

SUBMITTED: 050:164

ENCL: 00

SUB CODE: DP

REF COV: 00

OTHER: 002

ATD PRESS: 3246-F

Card 3/3

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The ALPHA system of automatic programming. Zhur. vych. mat. i mat. fiz. 5 no.2:317-325 Mr-Ap '65. (MIRA 18:5)

BABETSKI, S. Ya.

25181

S/056/61/040/006/002/031

B102/B214

3.3410

AUTHORS: Babetski, S. Ya., Buya, Z. A., Grigorov, N. L., Loskevich, Ye. S., Massal'ski, Ye. I., Oles', A. A., Shestoperov, V. Ya.

TITLE: Investigation of large ionization bursts caused by cosmic ray particles at sea level

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 6, 1961, 1551 - 1561

TEXT: The authors investigated particle interactions for energies of 10^{12} - 10^{13} ev using photoemulsions. The reports on the measurements are presented in this paper. The experimental arrangement consisted of 128 ionization chambers (total area 10 m^2), which together with a combined lead graphite filter formed a so-called ionization calorimeter which also made the determination of shower coordinates possible. This apparatus was set up on Mount Aragats at a height of 3200 m (a simpler variety of this device was used in Moscow earlier, 50 m above sea level). Fig. 1 shows the arrangement of the layers and cylindrical ionization chambers (I-IV) above and below the graphite layer (density 60 g/cm^2). The apparatus was placed in a special Card 1/6

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building and covered on the top by light materials only (2 g/cm^2). All the amplifiers were calibrated by radiotechnical means twice a day. The amplification factor was found in general not to vary more than 2 - 3 % in the course of a day. During the first half period of the measurements in series I of chambers the frequency of the bursts of a size of $J_1 = 1200$ relativistic particles was $(1.27 \pm 0.03) \cdot 10^{-1} / \text{hr} \cdot \text{m}^2$; in the second half period it was $(1.25 \pm 0.03) \cdot 10^{-1} / \text{hr} \cdot \text{m}^2$. Measurements carried out for 2640 hours with the chambers placed below the graphite layer showed that the electron and photon showers recorded were produced inside the apparatus. The intensity ratio for the two series for a shower with particles numbering $(1.2 - 2.4) \cdot 10^3$ was $(J_1/J_2) = 1.5 \pm 0.1$; for showers with number of particles $> 1.2 \cdot 10^4$ this ratio was 3.4 ± 0.8 . These showers could have been produced in the apparatus by the interaction of the high energy particles of nuclear kind in the graphite, or by the electromagnetic interaction of high energy muons in the filter. The spectrum of the ionization bursts was determined from the total ionization recorded in all the chambers (for the bursts considered) separately for the first and the second series. If the observed distribu-

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tion is represented in the form of an exponential law $N(\geq J) = AJ^{-\gamma}$, for the first series is 1.71 ± 0.04 and for the second 2.00 ± 0.04 . These results agree well with those of other authors. Part of the showers were distinguished by a strong nonmonotonous ionization distribution in the series I and II (ionization in the individual chambers, very weak or no ionization in the neighboring chambers). These were designated as "structural" bursts. Numerical data on these are given in Table 1. The average distance l between the chambers, recording maximum ionization, were also determined for this kind of bursts. The results are given in Table 2. The spectrum of these bursts may be represented by $N(\geq J) = BJ^{-\gamma}$, where $\gamma = 1.96 \pm 0.03$. The results are discussed in the following, and an attempt has been made to determine the course of the bursts in altitude by theoretical considerations. This is done under special assumptions about the properties of the participating pions and the spectrum of the primary particles. The nature of large ionization bursts is also discussed. The authors thank Diploma Student V. Trush for collaboration. Ye. A. Murzina, S. I. Nikol'skiy, and V. I. Yakovlev are mentioned. There are 4 figures, 2 tables and 12 references: 11 Soviet-bloc and 1 non-Soviet-bloc.

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21(1)

AUTHORS:

SOV/56-36-4-2/70
Vernov, S. N., Babetskiy, Ya. S., Goryunov, N. N., Kulikov, G. V.,
Nechin, Yu. A., Strugalskiy, Z. S., Khristiansen, G. B.

TITLE:

On the Structure of the Core and the Central Regions of Extensive
Atmospheric Showers at Sea Level (O strukture stvola i tsentral'-
nykh oblastey shirokikh atmosferykh livney na urovne morya)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36,
Nr 4, pp 976-984 (USSR)

ABSTRACT:

The object of the present paper was an experimental investi-
gation of the spatial distribution of the energy flux of the
electron-photon and the nuclear-active component in the core
and the central regions of extensive air showers; the present
paper is a continuation of an article published in the pre-
ceding issue of this periodical (Ref 1), in which the method
and the experimental arrangement were already described.
Figure 1 is a schematical representation of the chamber system
with the distribution of hodoscope counters. The counters were
located in groups of 12 and 24 in containers. The ionization
chambers had a total area of 4 m². In the course of the 1800
hours during which the apparatus was in operation, about 18000

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showers were recorded, with particle numbers of between 10^3 and 10^6 , and axes which were at a distance of up to 30 m from the system of ionization chambers. From the manifold material obtained by these investigations the spatial distribution obtained for individual showers or groups of showers (classification according to particle number N) are analyzed. For spatial particle flux density it holds that $q(r) \approx 2 \cdot 10^{-3} N/r$ for $r < 10$ m; for the energy flux density: $q_E(r) \sim r^{-1.2}$. For shower groups of different sizes (ΔN from $1.0 \cdot 10^3 - 5.0 \cdot 10^5$ up to $5 \cdot 10^3 - 5 \cdot 10^5$) table 1 shows how many of the total of 82 investigated showers correspond to certain n -values (from 0.8 to 3.2 - 3.4). Figure 2 (a,b) shows the spatial distribution of the energy flux of electron-photon and nuclear-active components of two different shower groups, figure 3 shows the energy spectrum of the nuclear-active component in the shower cores, and figure 4 shows the distribution of the absolute values of the energy flux of the electron-photon component in a circle with the radius 1.5 m round the axis of a shower with $N = 10^5$ particles. The diagram is characteristic of the strong oscillations ob-

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served. Figure 5 finally shows the spatial energy flux distribution within the range of from 0.1 to 30 m; the measured values (in a semilogarithmic diagram) are practically on a steeply declining straight line. Thus, the following is obtained for the electron-photon component:

$$q_{e-ph} \sim 1/r^{1.35} \quad \text{at } 0.1 \text{ m} < r < 2.0 \text{ m}$$

$$q_{e-ph} \sim 1/r^2 \quad \text{at } 2.0 \text{ m} < r < 30 \text{ m}$$

and for the nuclear-active component: $\dot{q}_{n-a} \sim 1/r^2$ at $0.2 \text{ m} < r < 30 \text{ m}$.

Figure 6 again shows the spatial distribution of the absolute values of energy flux in a distance of 10 m from the shower core; like within the range of the core itself, oscillations are considerable. The authors finally thank G. T. Zatsepin and I. P. Ivanenko for advice and discussions. There are 6 figures, 3 tables, and 3 Soviet references.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute for Nuclear Physics of Moscow State University)
Card 3/4

3,2410 also 2412

26407
S/056/61/041/001/002/021
B102/B212

AUTHORS: Babetski, Ya. S., Buya, Z. A., Grigorov, N. L., Loskevich, Ye. S., Massal'ski, Ye. I., Oles', A. A., Shestoporov, V. Ya., Fisher, S.

TITLE: Nuclear-active particles in atmospheric showers

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 1 (7), 1961, 13 - 21

TEXT: The aim of the present paper has been to contribute to the clarification of the characteristics of elementary processes underlying the formation of an extensive air shower and also of the role played by the nuclear-active component in shower formation. A number of shower parameters have been determined (the energy E_{e-ph} of the electron-photon component, the energy transferred by π^0 mesons, and the ionizations I in the chamber rows) by employing an arrangement which has been described earlier by the authors (Ref. 4: ZhETF, 40, 1551, 1961). It consists of 128 ionization chambers (active area, 10 m^2). [Abstracter's note: In order to follow the Card 1/5

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statements, a knowledge of Ref. 4 is required] The measurements were made at sea level for both extensive and "young" atmospheric showers. Of all extensive atmospheric showers recorded, those with $J_{3,4} \geq 1.2 \cdot 10^4$ relativistic particles (i. e., $E_{e-ph} \geq 2 \cdot 10^{12}$ ev) have been selected. 284 such showers had been found after 1842 hours of measuring. (The ionization chambers were arranged in four rows; $E_{\pi^0}/E_{e-ph} = J_{1,2}/J_{3,4}$ could be set in good approximation). A determination of the position of the axes of these extensive atmospheric showers showed that in about half of all cases the shower axis hit the instrument and in all other cases the axis was found nearby. It can thus be assumed that the mean value E_{π^0}/E_{e-ph} measured refers to the central region of the shower. The selected showers with $J_{3,4} \geq 1.2 \cdot 10^4$ had a number of particles amounting to $\geq 10^5$, and $(J_{1,2}/J_{3,4}) = 0.130 \pm 0.047$ was obtained for them. For showers whose axes did hit the measuring arrangement this ratio was equal to 0.128 ± 0.036 . Assuming that the ionization by nuclear-active particles was not a function of the location of the chamber in the arrangement, then it follows that the

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electron-photon component in row I increases the ionization by $30 \pm 7.5\%$. From this it follows that $(E_{\pi^0}/E_{e-ph}) = 0.091 \pm 0.031$; if the angular distribution in an extensive atmospheric shower is taken into account, one obtains 0.097 ± 0.036 . Table 2 shows the ionization ratios for various shower groups. Special investigations which have been made for "young" atmospheric showers (1900 hours, 52 "young" atmospheric showers with $J_{3,4} \geq 1.2 \cdot 10^4$ relativistic particles) yielded the following results: The intensity of these showers "young" atmospheric showers was equal to $0.95 \pm 0.13) \cdot 10^{-10} \text{ cm}^{-2} \text{ sec}^{-1}$, and the energy of the electron-photon component was not less than $2 \cdot 10^{12} \text{ ev}$. The ionization in the third chamber row was always 1.5 - 2 times higher than that in the fourth row. The intensity of individual showers ($J_2 \geq 1.2 \cdot 10^4$) measured in the second row was equal to $2 \cdot 10^{-11} \text{ cm}^{-2} \text{ sec}^{-1}$. The J_3 or E_{e-ph} distribution of the "young" showers can be described by $N(\geq J_3) = A J_3^{-\gamma}$, where $\gamma = 1.5 \pm 0.4$. Some cases have been found with $E_{e-ph} \geq 10^{13} \text{ ev}$. These "young" showers

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proved to be starts of extensive atmospheric showers with $N \sim 10^4$ at most. For these 52 "young" atmospheric showers a value of $(J_{1,2}/J_3) = 0.11 \pm 0.03$ has been found, i. e., it was nearly equal to that of extensive atmospheric with $J_3 \geq 1.2 \cdot 10^4$. An estimation of the ratio of the energy of nuclear-active particles to the energy of the electron-photon component furnishes a value that is 2.5 - 2 times smaller than that found earlier (by assuming an inelasticity coefficient $K \approx 0.5$; cf. ZhETF, 36, 751, 1959). Therefore, it has to be assumed that $K \approx 0.75 - 0.6$. Furthermore, it has been found that near the axes of extensive atmospheric showers the energy of nuclear-active particles is less than 50 % of the energy of the electron-component ($E_{n.a.}/E_{e-ph} = 0.40 \pm 0.14$), and that in about 30 % of all "young" atmospheric showers the nuclear-active component is practically absent. There are 5 figures, 2 tables, and 6 Soviet-bloc references.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University)

Card 4/5

3.2410 (2205, 2705, 2805)

S/048/62/026/005/002/022
B102/B104

AUTHORS: Babayan, Kh. P., Babetski, Ya. S., Boyadzhyan, N. G.,
Buya, Z. A., Grigorov, N. L., Loskevich, Ye. S.,
Mamidzhanyan, E. A., Massal'skiy, Ye. I., Oles', A. A.,
Tret'yakova, Ch. A., and Shestoperov, V. Ya.

TITLE: Investigation of the interaction of high-energy particles
with atomic nuclei on mountains

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26,
no. 5, 1962, 558 - 571

TEXT: Ionization bursts caused by the electron-photon component of a
shower of cosmic-ray particles were studied with an array of ionization
chambers (Fig. 1) at the mountain station (3200 m) of the Akademiya nauk
Armyanskoy SSR (Academy of Sciences Armyanskaya SSR). The array consisted
of six rows of ionization chambers separated by layers of lead and
graphite, and covered an area of 10 m^2 . Owing to this large area, heavy
bursts with a total energy of locally generated π^0 mesons amounting to
 $\sim 10^{13}$ ev could be photographed. The data obtained were analyzed for

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ionization bursts in the filter of the arrangement, for the altitude dependence of the burst frequency, and for the burst spectrum and its dependence on the size of the arrangement; the mechanism of local π^0 generation by single nuclear-active particles was investigated. The bursts observed were grouped according to their intensity I , i.e., according to the number of relativistic particles involved; for each group, the numbers of ionization and "structuralized" bursts were determined for rows I-IV. The spectrum of ionization bursts can be described by $N(>I) = AI^{-\gamma}$ for all chambers. The index of the integral spectrum for $2 \cdot 10^3 \leq I \leq 2 \cdot 10^5$ equals 1.37 ± 0.02 . With an area of $\sim 0.6 \text{ m}^2$ it was found that $\sim 20\%$ of the bursts were "structuralized" for $1 \cdot 10^3 \leq I \leq 5 \cdot 10^3$. At $I > 1 \cdot 10^4$ and 10 m^2 50% of the bursts (at sea level) and 75% (on the mountains) have a structure. An analysis of the course of the bursts with the altitude has shown that: (1) the integral spectrum of muon-induced bursts with $3 \cdot 10^3 - 3 \cdot 10^4$ particles has an exponent of $\gamma = 2.22 \pm 0.14$; (2) for a burst of equal intensity, induced by a single nuclear-active particle, $\gamma = 1.98 \pm 0.09$; (3) at 3200 m, the muon contribution to single heavy bursts is small (15% of all bursts with $\sim 10^3$ particles, and $\sim 4\%$ of those with $\sim 2 \cdot 10^4$ particles; Card 2/6

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(4) at sea level, the muon contribution is $\sim 70\%$ ($\sim 10^3$ particles) and $\sim 50\%$ ($\sim 2 \cdot 10^4$ particles). The burst spectrum was found to depend greatly on the area of the measuring arrangement. With $2 \cdot 10^3 - 2 \cdot 10^5$ particles, γ goes over from 1.37 ± 0.02 for $(330 \text{ cm})^2$ to 1.99 ± 0.05 for $10 \cdot 330 \text{ cm}^2$. The spectrum of bursts with a π^0 energy transfer of $3 \cdot 10^{11} - 10^{13}$ ev agrees with that of nuclear-active particles, and exhibits no "breaks". When particles with $E > 10^{12}$ ev interact with light nuclei in about 10% of the events, the interaction is completely inelastic, and the π^0 energy transfer amounts to 60 - 80% of the primary-particle energy. Such interactions obviously play a significant role in the formation of extensive air showers with at least $10^4 - 10^5$ particles. There are 8 figures and 7 tables.

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BABEU, Tiberiu, ing.; DOBRE, Ionel, ing.; BOGDANESCU, Ioan, ing.

Experimental study of the rugosity variation of cylinders
in the M-59A engines during their running-in after overhauls.
Rev transport 12 no.2:49-54 F '65.